$\mathbb{Z}$
$\mathbf{A} = \mathbf{A}$

$\mathbb{B} = \{\mathbf{T}, \mathbf{F}\}$
$\mathbb{N} = \{0, 1, 2, ...\}$ or $\mathbb{N} = \{1, 2, 3, ...\}$
$A \subseteq B \iff \forall x(x \in A \implies x \in B)$
$A = B \iff \forall x(x \in A \iff x \in B) \iff A \subseteq B$ and $B \subseteq A$
$A \subset B \iff A \subseteq B$ and $A \neq B$
$\emptyset = \{\}$
$\forall x(x \notin \emptyset)$
$\{1, 2, 2, 1\} = \{1, 2\}$
$\mathcal{P}(A) = \{S \mid S \subseteq A\}$
$(a, b) = (c, d) \iff a = c$ and $b = d$
$A \times B = \{(a, b) \mid a \in A$ and $b \in B\}$
$(a_1, ..., a_n) = (b_1, ..., b_n) \iff \forall i, a_i = b_i$
$A_1 \times \cdots \times A_n = \{(a_1, ..., a_n) \mid a_i \in A_i$ for all $i \in \{1, ..., n\}\}$
$A^n = \{(a_1, ..., a_n) \mid a_i \in A$ for all $i = 1, ..., n\} = A \times \cdots \times A$
$A \cup B = \{x \mid x \in A$ or $x \in B\}$ and $\bigcup_{i \in I} A_i = \{x \mid x \in A_i$ for some $i \in I\}$
$A \cap B = \{x \mid x \in A$ and $x \in B\}$
$A - B = \{x \mid x \in A$ and $x \notin B\}$
$A \oplus B = \{x \mid x \in A \cup B$ and $x \notin A \cap B\}$
$f : A \to B \iff \forall x \in A, \exists! y \in B, f(x) = y$
$f : \mathbb{R} \to \mathbb{R}$ and $S \subseteq \mathbb{R}$
$f[S] = \{f(x) \mid x \in S\}$
f is increasing $\iff (a < b \implies f(a) \leq f(b))$
$(a, b] = \{x \mid a < x \leq b\}$
$\lfloor \_ \rfloor : \mathbb{R} \to \mathbb{Z}$
$\lfloor x \rfloor = n \iff n \in \mathbb{Z}$ and $n \leq x < n + 1$
$|x| = -x$ if $x < 0$ else x
$x = a/b \iff bx = a$ and $b \neq 0$
$(f + g)(x) = f(x) + g(x)$
$(fg)(x) = f(x)g(x)$
$(f/g)(x) = f(x)/g(x)$ if $g(x) \neq 0$
$(f \circ g)(x) = f(g(x))$
$id_A : A \to A$ and $\forall x, id_A(x) = x$
$graph(f) = \{(x, y) \mid f(x) = y\}$
$asso(\cdot) = ((x \cdot y) \cdot z = x \cdot (y \cdot z))$
$comm(\cdot) = (x \cdot y = y \cdot x)$
$idem(\cdot) = (x \cdot x = x)$
$Sgrp(\cdot) = \{asso(\cdot)\}$
$CSgrp(\cdot) = Sgrp(\cdot) \cup \{comm(\cdot)\}$
$Slat(\cdot) = CSgrp(\cdot) \cup \{idem(\cdot)\}$
$Lat(\vee, \wedge) = Slat(\vee) \cup Slat(\wedge) \cup \{(x \wedge y) \vee x = x,\ (x \vee y) \wedge x = x\}$
$\mathbf{L} = \langle L, \vee, \wedge \rangle$ is a lattice if $\mathbf{L} \vDash Lat(\vee, \wedge)$
Math fonts A

$\mathbb{A}BbbA$
$\mathbf{A}mbfA$
$\mathfrak{A}mfrakA, \mathfrak{A}mbffrakA$
$AmitA, \mathbf{A}mbfitA$
$\mathsf{A}msansA, \mathbf{A}mbfsansA, \mathsf{A}mitsansA, \mathbf{A}mbfitsansA$
$\mathcal{A}mscrA, \boldsymbol{\mathcal{A}}mbfscrA$
$\mathtt{A}mttA$
Greek alphabet
$\alpha alpha$
$\beta beta$
χchi
$\delta delta, \Delta Delta$
$\gamma gamma, \Gamma Gamma$
$\epsilon epsilon, varepsilon$
ηeta
$\kappa kappa$
$\lambda lambda, \Lambda Lambda$
μmu
νnu
$\omega omega, \Omega Omega$
$\phi phi, \varphi varphi, \Phi Phi$
$\pi pi, \Pi Pi$
$\psi psi, \Psi Psi$
ρrho
$\sigma sigma, \Sigma Sigma$
τtau
$\theta theta, \vartheta vartheta, \Theta Theta$
$\upsilon upsilon$
$\xi xi, \Xi Xi$
$\zeta zeta$
Logic symbols
$\neg neg, \vee vee, \wedge wedge$
$\Longrightarrow Longrightarrow, \Longleftarrow Longleftarrow$
$\Longleftrightarrow Longleftrightarrow$
$\forall forall, \exists exists, \nexists nexists$
$\Diamond lozenge, \square square$
$\vdash vdash, \nvdash nvdash, \Vdash Vdash$
$\vDash vDash, \nvDash nvDash, \models models$
$downzigzagarrow$
$\therefore therefore, \blacksquare QED$
Set symbols
$\in in, \notin notin$
$\ni ni, \not\ni nni$
$\emptyset emptyset, \wp wp$
$\subset subset, \not\subset nsubset$
$\subseteq subseteq, \nsubseteq nsubseteq, \subsetneq subsetneq$

$\supset supset, \not\supset nsupset$
$\supseteq supseteq, \not\supseteq nsupseteq, \supsetneq supsetneq$
$\cap cap, \cup cup, \uplus uplus$
$\setminus setminus, \complement complement$
$\bigcap bigcap, \bigcup bigcup, \biguplus biguplus$
$\aleph aleph, \beth beth$
Infix operations +, -, *, /,
$barcap,\ barcup$
$\barvee barvee, \barwedge barwedge$
$\cdot cdot, \circ circ, \bullet bullet$
$\div div, \dotminus dotminus,\ minusdot$
$\mp mp, \pm pm$
$\odot odot, \ominus ominus, \oplus oplus$
$\oslash oslash,\ obslash$
$\sqcap sqcap, \sqcup sqcup, \amalg amalg$
$\times times, \ltimes ltimes, \rtimes rtimes, \bowtie bowtie$
$triangleleft,\ triangleright$
$upand, \wr wr$
Functions cos, sin, tan, cot, csc, sec, log, exp, ln
$\Im Im, \Re Re$
$\sqrt{}^{sqrt,\ cbrt,\ fourthroot}$
Infix relations =, <, >, |, :
$\approx approx, \cong cong, \equiv equiv$
$\leq le, leq, \not\leq nleq, \geq ge, geq, \not\geq ngeq$
$\leqq leqq, \geqq geqq$
$\ll ll, \gg gg$
$\neq ne, neq$
$\not> ngtr, \not< nless$
$\mid mid, \nmid nmid$
$\prec prec, \not\prec nprec$
$\preceq preceq, \npreceq npreceq$
$\succ succ, \not\succ nsucc$
$\succeq succeq, \nsucceq nsucceq$
$\parallel parallel, \nparallel nparallel$
$\propto propto, \sim sim$
$\sqsubset sqsubset, \sqsubseteq sqsubseteq$
$\sqsupset sqsupset, \sqsupseteq sqsupseteq$
Operators lim, sup, inf, d/d, max, min
$\bigcirc bigcirc, \bigodot bigodot$
$\bigoplus bigoplus, \bigotimes bigotimes$
$\bigsqcap bigsqcap, \bigsqcup bigsqcup$
$bigstar, \bigtimes bigtimes, \biguplus bigcupdot$
$\bigvee bigvee, \bigwedge bigwedge$
$\int int, \iint iint, \iiint iiint, \iiiint iiiint$
$\oint oint, \oiint oiint, \oiiint oiiint$

$\partial partial, \nabla del$
$\prod prod, \sum sum, \coprod coprod$
Arrows
$\downarrow downarrow, \uparrow uparrow, \updownarrow updownarrow$
$\Downarrow Downarrow, \Uparrow Uparrow, \Updownarrow Updownarrow$
$\hookrightarrow hookrightarrow, \rightarrowtail rightarrowtail, \twoheadrightarrow twoheadrightarrow$
$\mapsto mapsto, \mapsfrom mapsfrom$
$\to to, rightarrow, \leftarrow leftarrow, \leftrightarrow leftrightarrow$
$\Rightarrow Rightarrow, \Leftarrow Leftarrow, \Leftrightarrow Leftrightarrow$
Brackets (,), [,], {, }
$\langle langle, \rangle rangle$
$\lceil lceil, \rceil rceil$
$\lfloor lfloor, \rfloor rfloor$
$[\![llbracket,]\!] rrbracket$
Other !,
$\angle angle,\ Angle$
$\bot bot, \top top$
$breve, check, hat,$
$\checkmark checkmark$
$\clubsuit clubsuit, \diamondsuit diamondsuit, \heartsuit heartsuit, \spadesuit spadesuit$
$\dagger dagger$
$^\circ degree$
$...dots, \therefore adots, \cdots cdots, \ddots ddots$
ℓell
€$euro$
$\flat flat, \sharp sharp$
$\frown frown, \smile smile$
$hbar$
$\infty infty$